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EXAMINER	
HUGHES, SCOTT A	
ART UNIT	**PAPER NUMBER**
3663	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	02/09/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/544,280	JONES, ROBERT HUGHES	
	Examiner	Art Unit	
	Scott A. Hughes	3663	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *05 January 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-12* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-12* is/are rejected.

7)☒ Claim(s) *6* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *N/A* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *11/4/2005*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Drawings

The application contains no drawings, and therefore the application is objected to under 37 CFR 1.83(a). Drawings must show every feature of the invention specified in the claims. Therefore, drawings must be submitted which show the claimed features or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Objections

Claim 6 is objected to because of the following informalities: Claim 6 recites the limitation "time or times or origin" when it should "time or times of origin." Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-11 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Independent claim 1 recites the limitation "Data processing means for calculating ... comprising a data processor adapted to" in the preamble of the claim. This is indefinite because it is unclear whether the applicant is intending to use "means for" language to claim the structure and the data processor is part of the "means for" or if the data processor is the only structure being claimed. Since applicant uses "means for" language and then recites structure (data processor and sensor stations in claim limitations), the scope of the structure being claimed is indefinite.

Claims 3-5 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 3 recites the limitation "for the microseismic event" in the fourth line of the claim. There is insufficient antecedent basis for this limitation in the claim. Claim 1, from which claim 3 depends, recites the limitation of either a seismic or microseismic event. There is a lack of antecedent basis for limiting this to only microseismic events in claim 3 since claim 1 recited that either seismic or microseismic can be used.

Claims 8-10 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The "could be picked" clause provides language that suggests or makes optional but does not require steps to be performed or does not limit the scope of a claim or claim limitation (MPEP § 2106(II,C)). Accordingly, the metes and bound of the claim can not be ascertained by one having ordinary skill in the art.

The terms "more likely" and "most likely" in claims 8-10 are relative terms which render the claims indefinite. The terms "more likely" and "most likely" are not defined by the claims, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. The degree of similarity required between picked arrival times and true arrival times is not clear from the claim language, as it is unclear what parameters are being observed to determine how the picked and true times correspond.

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 1-3 and 6-12 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. The claims are not directed to a practical application of a judicial exception because the claim does not require any physical transformation and the invention as claimed does not produce a useful, concrete, and tangible result. The claims do not contain a tangible result because the steps of the claims are calculating and estimating steps. The results of these steps are abstract ideas that are not tangible results since the result is not displayed, physically stored, or used in a real-world, tangible way.

Claim 11 is rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. Claim 11 is directed to "A data carrier comprising computer readable program means." The claim does not fall within at least one of the four categories of patent eligible subject matter recited in 35 U.S.C. 101 (process, machine, manufacture, or composition of matter) because the "data carrier" can be a carrier wave containing a program which is not a process, machine, manufacture, or composition of manner.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-4, 6-10, and 12 are rejected under 35 U.S.C. 102(e) as being anticipated by Garotta (6639871).

With regard to claim 1, Garotta discloses data processing means for calculating an estimated time of arrival of a seismic or microseismic P or S wave at a sensor location, comprising a data processor (Column 1) adapted to:

- calculate an estimated time of origin for the seismic or microseismic event generating the P and S waves, based on a P to S wave velocity ratio and picked arrival times of the P and S waves at a sensor station other the one for which the estimated time of arrival of the P or S wave is to be calculated (Column 1, Line 25 to Column 2, Line 46; Column 3, Line 1 to Column 4, Line 52).
- calculate the estimated time of arrival of the P or S wave, based on a P to S wave velocity ratio, the estimated time of origin of the seismic or microseismic event and, where the estimated arrival time of a P wave is to be calculated, a picked arrival time of the S wave at the sensor station for

which the estimated arrival time of the P wave is being calculated or, where the estimated arrival time of an S wave is to be calculated, a picked arrival time of the P wave at the sensor station for which the estimated arrival time of the S wave is to be calculated (Column 1, Line 25 to Column 2, Line 46; Column 3, Line 1 to Column 4, Line 52).

With regard to claim 2, Garotta discloses the data processor being adapted to calculate estimated arrival times for both the P and S waves at a sensor station (Column 1, Line 25 to Column 2, Line 46; Column 3, Line 1 to Column 4, Line 52).

With regard to claim 3, Garotta discloses the data processor being adapted to calculate a plurality of estimated times of arrival of the P and/or S waves (Column 1, Line 65 to Column 2, Line 45) at a sensor station, based on a plurality of estimated times of origin for the microseismic event calculated from the picked arrival times of the p and S waves at a plurality of sensor stations other than the one at which the estimated times of arrival are to be calculated (Column 1, Line 25 to Column 2, Line 46; Column 3, Line 1 to Column 4, Line 52).

With regard to claim 4, Garotta discloses that the data processor is further adapted to display the picked arrival times and estimated arrival times in relation to each other such that the clustering pattern of the arrival times can be analyzed (Fig. 2).

With regard to claim 6, Garotta discloses the data processor being adapted to calculate one or more estimated times of arrival for the P and/or S waves at each sensor station in a network of a sensor stations, wherein for each sensor station the necessary estimated time or times of origin are calculated from the picked P and S

waves at one or more of the other stations in the network (Column 1, Line 25 to Column 2, Line 46; Column 3, Line 1 to Column 4, Line 52).

With regard to claim 7, Garotta discloses that the data processor is adapted to receive seismic data from the sensor stations to pick arrival times for the P and S wave at each sensor station based on the seismic data (Column 1, Line 25 to Column 2, Line 46; Column 3, Line 1 to Column 4, Line 52).

With regard to claim 8, as best understood by the examiner as requiring a number of possible arrival times being picked, Garotta discloses that a number of possible arrival times for a wave at a sensor station could be picked (Columns 1-2), the processor is adapted to compare the possible arrival times with any estimates calculated for the arrival time of the wave at the station in order to determine which of the possible picked arrival times are more likely to correspond to the true arrival time of the wave at the station (Column 1, Line 25 to Column 2, Line 46; Column 3, Line 1 to Column 4, Line 52).

With regard to claim 9, Garotta discloses that the data processor is further adapted to select or modify one of the possible arrival times in order to arrive at a final picked arrival time that, based on the determination, seems most likely to correspond to the true arrival time of the wave (Column 1, Line 25 to Column 2, Line 46; Column 3, Line 1 to Column 4, Line 52).

With regard to claim 10, Garotta discloses that the data processor is adapted to indicate which of the possible arrival times should be selected or modified in order to arrive at a final picked arrival time that seems, based on the determination, to be most

likely to correspond to the true arrival time (Column 1, Line 25 to Column 2, Line 46; Column 3, Line 1 to Column 4, Line 52).

With regard to claim 12, Garotta discloses a method of calculating an estimated time of arrival of a seismic or microseismic P or S wave at a sensor station, the method comprising the steps of:

- calculating an estimated time of origin for the seismic or microseismic event generating the P and S waves, based on a P to S wave velocity ratio and picked arrival times of the P and S waves at a sensor station other the one for which the estimated time of arrival of the P or S wave is to be calculated (Column 1, Line 25 to Column 2, Line 46; Column 3, Line 1 to Column 4, Line 52).
- calculating the estimated time of arrival of the P or S wave, based on a P to S wave velocity ratio, the estimated time of origin of the seismic or microseismic event and, where the estimated arrival time of a P wave is to be calculated, a picked arrival time of the S wave at the sensor station for which the estimated arrival time of the P wave is being calculated or, where the estimated arrival time of an S wave is to be calculated, a picked arrival time of the P wave at the sensor station for which the estimated arrival time of the S wave is to be calculated (Column 1, Line 25 to Column 2, Line 46; Column 3, Line 1 to Column 4, Line 52).

Claims 1-12 are rejected under 35 U.S.C. 102(e) as being anticipated by Zhang (US20030021184).

With regard to claim 1, Zhang discloses data processing means for calculating an estimated time of arrival of a seismic or microseismic P or S wave at a sensor location r1, comprising a data processor (abstract; Pages 7-8) adapted to:

- calculate an estimated time of origin for the seismic or microseismic event generating the P and S waves, based on a P to S wave velocity ratio (G) and picked arrival times of the P and S waves at a sensor station r2,r3 other the one for which the estimated time of arrival of the P or S wave is to be calculated (Figs. 1-5) ([0033]-[0156]).
- calculate the estimated time of arrival of the P or S wave, based on a P to S wave velocity ratio, the estimated time of origin of the seismic or microseismic event and, where the estimated arrival time of a P wave is to be calculated, a picked arrival time of the S wave at the sensor station for which the estimated arrival time of the P wave is being calculated or, where the estimated arrival time of an S wave is to be calculated, a picked arrival time of the P wave at the sensor station for which the estimated arrival time of the S wave is to be calculated (Figs. 1-5) ([0033]-[0156]).

With regard to claim 2, Zhang discloses the data processor being adapted to calculate estimated arrival times for both the P and S waves at a sensor station (Figs. 1-5) ([0033]-[0156]; especially pages 2-3).

With regard to claim 3, Zhang discloses the data processor being adapted to calculate a plurality of estimated times of arrival of the P and/or S waves at a sensor station, based on a plurality of estimated times of origin for the microseismic event calculated from the picked arrival times of the p and S waves at a plurality of sensor stations other than the one at which the estimated times of arrival are to be calculated (Figs. 1-6) ([0033]-[0156]).

With regard to claim 4, Zhang discloses that the data processor is further adapted to display the picked arrival times and estimated arrival times in relation to each other such that the clustering pattern of the arrival times can be analyzed (Figs. 1-6) (Pages 2-6).

With regard to claim 5, Zhang discloses that the data processor is adapted to display information regarding the calculation of any particular estimated arrival time in response to the selection of the estimated arrival time by a user (Figs. 1-6) (Pages 2-6).

With regard to claim 6, Zhang discloses the data processor being adapted to calculate one or more estimated times of arrival for the P and/or S waves at each sensor station in a network of a sensor stations r1,r2,r3, wherein for each sensor station the necessary estimated time or times of origin are calculated from the picked P and S waves at one or more of the other stations in the network (Figs. 1-6) ([0033]-[0156]).

With regard to claim 7, Zhang discloses that the data processor is adapted to receive seismic data from the sensor stations to pick arrival times for the P and S wave at each sensor station based on the seismic data ([0033]-[0156]).

With regard to claim 8, as best understood by the examiner as requiring a number of possible arrival times being picked, Zhang discloses that a number of possible arrival times for a wave at a sensor station could be picked, the processor is adapted to compare the possible arrival times with any estimates calculated for the arrival time of the wave at the station in order to determine which of the possible picked arrival times are more likely to correspond to the true arrival time of the wave at the station ([0033]-[0156]).

With regard to claim 9, Zhang discloses that the data processor is further adapted to select or modify one of the possible arrival times in order to arrive at a final picked arrival time that, based on the determination, seems most likely to correspond to the true arrival time of the wave ([0033]-[0156], especially pages 3-5).

With regard to claim 10, Zhang discloses that the data processor is adapted to indicate which of the possible arrival times should be selected or modified in order to arrive at a final picked arrival time that seems, based on the determination, to be most likely to correspond to the true arrival time ([0033]-[0156], especially pages 3-5).

With regard to claim 11, Zhang discloses a data carrier comprising computer readable program means for adapting a computer to function as the data processing means of claim 1 (Page 7).

With regard to claim 12, Zhang discloses a method of calculating an estimated time of arrival of a seismic or microseismic P or S wave at a sensor station r1, the method comprising the steps of:

- calculating an estimated time of origin for the seismic or microseismic event generating the P and S waves, based on a P to S wave velocity ratio and picked arrival times of the P and S waves at a sensor station other the one for which the estimated time of arrival of the P or S wave is to be calculated (Figs. 1-5) ([0033]-[0156]).
- calculating the estimated time of arrival of the P or S wave, based on a P to S wave velocity ratio, the estimated time of origin of the seismic or microseismic event and, where the estimated arrival time of a P wave is to be calculated, a picked arrival time of the S wave at the sensor station for which the estimated arrival time of the P wave is being calculated or, where the estimated arrival time of an S wave is to be calculated, a picked arrival time of the P wave at the sensor station for which the estimated arrival time of the S wave is to be calculated(Figs. 1-5) ([0033]-[0156]).

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-3, 8-10 and 12 are rejected under 35 U.S.C. 102(b) as being anticipated by Audebert (WO0131364).

With regard to claim 1, Audebert discloses data processing means for calculating an estimated time of arrival of a seismic or microseismic P or S wave at a sensor location, comprising a data processor adapted to:

- calculate an estimated time of origin for the seismic or microseismic event generating the P and S waves, based on a P to S wave velocity ratio and picked arrival times of the P and S waves at a sensor station other the one for which the estimated time of arrival of the P or S wave is to be calculated (Page 2, Line 10 to Page 3, Line 25; Page 4, Line 11 to Page 13, Line 4) (Figs. 1-3).
- calculate the estimated time of arrival of the P or S wave, based on a P to S wave velocity ratio, the estimated time of origin of the seismic or microseismic event and, where the estimated arrival time of a P wave is to be calculated, a picked arrival time of the S wave at the sensor station for which the estimated arrival time of the P wave is being calculated or, where the estimated arrival time of an S wave is to be calculated, a picked arrival time of the P wave at the sensor station for which the estimated arrival time of the S wave is to be calculated (Page 2, Line 10 to Page 3, Line 25; Page 4, Line 11 to Page 13, Line 4) (Figs. 1-3).

With regard to claim 2, Audebert discloses the data processor being adapted to calculate estimated arrival times for both the P and S waves at a sensor station (Page 2, Line 10 to Page 3, Line 25; Page 4, Line 11 to Page 13, Line 4) (Figs. 1-3).

With regard to claim 3, Audebert discloses the data processor being adapted to calculate a plurality of estimated times of arrival of the P and/or S waves at a sensor station, based on a plurality of estimated times of origin for the microseismic event calculated from the picked arrival times of the p and S waves at a plurality of sensor stations other than the one at which the estimated times of arrival are to be calculated (Page 2, Line 10 to Page 3, Line 25; Page 4, Line 11 to Page 13, Line 4) (Figs. 1-3).

With regard to claim 8, as best understood by the examiner as requiring a number of possible arrival times being picked, Audebert discloses that a number of possible arrival times for a wave at a sensor station could be picked, the processor is adapted to compare the possible arrival times with any estimates calculated for the arrival time of the wave at the station in order to determine which of the possible picked arrival times are more likely to correspond to the true arrival time of the wave at the station (Page 2, Line 10 to Page 3, Line 25; Page 4, Line 11 to Page 13, Line 4) (Figs. 1-3).

With regard to claim 9, Audebert discloses that the data processor is further adapted to select or modify one of the possible arrival times in order to arrive at a final picked arrival time that, based on the determination, seems most likely to correspond to the true arrival time of the wave (Page 2, Line 10 to Page 3, Line 25; Page 4, Line 11 to Page 13, Line 4) (Figs. 1-3).

With regard to claim 10, Audebert discloses that the data processor is adapted to indicate which of the possible arrival times should be selected or modified in order to arrive at a final picked arrival time that seems, based on the determination, to be most

likely to correspond to the true arrival time (Page 2, Line 10 to Page 3, Line 25; Page 4, Line 11 to Page 13, Line 4) (Figs. 1-3).

With regard to claim 12, Audebert discloses a method of calculating an estimated time of arrival of a seismic or microseismic P or S wave at a sensor station, the method comprising the steps of:

- calculating an estimated time of origin for the seismic or microseismic event generating the P and S waves, based on a P to S wave velocity ratio and picked arrival times of the P and S waves at a sensor station other the one for which the estimated time of arrival of the P or S wave is to be calculated (Page 2, Line 10 to Page 3, Line 25; Page 4, Line 11 to Page 13, Line 4) (Figs. 1-3).
- calculating the estimated time of arrival of the P or S wave, based on a P to S wave velocity ratio, the estimated time of origin of the seismic or microseismic event and, where the estimated arrival time of a P wave is to be calculated, a picked arrival time of the S wave at the sensor station for which the estimated arrival time of the P wave is being calculated or, where the estimated arrival time of an S wave is to be calculated, a picked arrival time of the P wave at the sensor station for which the estimated arrival time of the S wave is to be calculated (Page 2, Line 10 to Page 3, Line 25; Page 4, Line 11 to Page 13, Line 4) (Figs. 1-3).

Claims 1-3 and 12 are rejected under 35 U.S.C. 102(b) as being anticipated by Sayers (6067275).

With regard to claim 1, Sayers discloses data processing means for calculating an estimated time of arrival of a seismic or microseismic P or S wave at a sensor location, comprising a data processor adapted to:

- calculate an estimated time of origin for the seismic or microseismic event generating the P and S waves, based on a P to S wave velocity ratio and picked arrival times of the P and S waves at a sensor station other the one for which the estimated time of arrival of the P or S wave is to be calculated (Column 6, Line 16 to Column 8, Line 30) (Figs. 3-5a).
- calculate the estimated time of arrival of the P or S wave, based on a P to S wave velocity ratio, the estimated time of origin of the seismic or microseismic event and, where the estimated arrival time of a P wave is to be calculated, a picked arrival time of the S wave at the sensor station for which the estimated arrival time of the P wave is being calculated or, where the estimated arrival time of an S wave is to be calculated, a picked arrival time of the P wave at the sensor station for which the estimated arrival time of the S wave is to be calculated (Column 6, Line 16 to Column 8, Line 30) (Figs. 3-5a).

With regard to claim 2, Sayers discloses the data processor being adapted to calculate estimated arrival times for both the P and S waves at a sensor station (Column 6, Line 16 to Column 8, Line 30) (Figs. 3-5a).

With regard to claim 3, Sayers discloses the data processor being adapted to calculate a plurality of estimated times of arrival of the P and/or S waves at a sensor station, based on a plurality of estimated times of origin for the microseismic event calculated from the picked arrival times of the p and S waves at a plurality of sensor stations other than the one at which the estimated times of arrival are to be calculated (Column 6, Line 16 to Column 8, Line 30) (Figs. 3-5a).

With regard to claim 12, Sayers discloses a method of calculating an estimated time of arrival of a seismic or microseismic P or S wave at a sensor station, the method comprising the steps of:

- calculating an estimated time of origin for the seismic or microseismic event generating the P and S waves, based on a P to S wave velocity ratio and picked arrival times of the P and S waves at a sensor station other the one for which the estimated time of arrival of the P or S wave is to be calculated (Column 6, Line 16 to Column 8, Line 30) (Figs. 3-5a).
- calculating the estimated time of arrival of the P or S wave, based on a P to S wave velocity ratio, the estimated time of origin of the seismic or microseismic event and, where the estimated arrival time of a P wave is to be calculated, a picked arrival time of the S wave at the sensor station for which the estimated arrival time of the P wave is being calculated or, where the estimated arrival time of an S wave is to be calculated, a picked arrival time of the P wave at the sensor station for which the estimated

arrival time of the S wave is to be calculated (Column 6, Line 16 to Column 8, Line 30) (Figs. 3-5a).

Intended Use Statements:

The "adapted to" and "for adapting" clauses of claims 1-11 are essentially method limitations or statements or intended or desired use. Thus, these claims as well as other statements of intended use do not serve to patentably distinguish the claimed structure over that of the reference. See In re Pearson, 181 USPQ 641; In re Yanush, 177 USPQ 705; In re Finsterwalder, 168 USPQ 530; In re Casey, 512 USPQ 235; In re Otto, 136 USPQ 458; Ex parte Masham, 2 USPQ 2nd 1647.

See MPEP § 2114 which states:

> A claim containing a "recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from the prior art apparatus" if the prior art apparatus teaches all the structural limitations of the claim. Ex parte Masham, 2 USPQ 2nd 1647
>
> Claims directed to apparatus must be distinguished from the prior art in terms of structure rather than functions. In re Danly, 120 USPQ 528, 531.
>
> Apparatus claims cover what a device is not what a device does. Hewlett-Packard Co. v. Bausch & Lomb Inc., 15 USPQ2d 1525, 1528.

As set forth in MPEP § 2115, a recitation in a claim to the material or article worked upon does not serve to limit an apparatus claim.

Conclusion

The cited prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Scott A. Hughes whose telephone number is 571-272-6983. The examiner can normally be reached on M-F 9:00am to 5:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jack Keith can be reached on (571) 272-6878. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

SAH

JACK KEITH
SUPERVISORY PATENT EXAMINER